

Patent claims:

- 09691645-101800
1. Static mixer comprising precision cast elements (1) which are arranged along a central axis (10) and which in each case have a reinforcement region (4) at their circumference which extends over the entire circumference, wherein these cast elements (1) are assembled with intermediate elements (2) to form a cylindrical body, and wherein joint locations between the elements (1, 2) form surfaces (40a, 40b, 20a, 20b) which stand transversely to the central axis, characterized in that for each isolated cast element, in a rotation about its central axis the joint locations are accessible to machining tools for a subsequent machining — in particular for a grinding or turning; and in that as a result of the subsequent machining a predetermined total length (L) of the mixer in the direction of the central axis is precisely achieved.
 2. Static mixer in accordance with claim 1, characterized in that the reinforcement regions (4) of the cast elements (1) are in each case ring-shaped and each of these rings has cut-outs (41, 41', 42, 42') which are complementary to projecting parts (21, 21', 22, 22'; 23) of the intermediate elements (2).
 3. Static mixer in accordance with claim 2, characterized in that at least some of the projecting parts (23) of the intermediate elements (2) are separate parts which are fitted in into cut-outs (25) of the intermediate elements.

4. Static mixer in accordance with any ^{claim 1} ~~one of the claims 1 to 3~~, characterized in that all elements (1, 2, 2') are held together by a longitudinally slit cylinder (5) of a resiliently elastic sheet metal lamina.
5. Cast element for a static mixer in accordance with ^{claim 1} ~~any one of the claims 1 to 4~~, characterized in that it is manufactured by a precision casting method or an injection molding method and comprises a gridwork (3) of webs (31) which are arranged in layers, with the layers being oriented parallel to the central axis (10), and with the webs of adjacent layers crossing one another and enclosing angles between 10 and 70°, preferably a uniform angle of about 45°, with respect to the direction of the central axis.
6. Cast element in accordance with claim 5, characterized in that it is manufactured of a metallic alloy, of ceramic material or of plastic.
7. Cast element in accordance with claim 5 ~~or claim 6~~, characterized in that the gridwork (3) of the webs (31) is reinforced by a flange-like, co-cast ring (4) which has two ring-shaped surfaces (40a, 40b) which lie transversely to the central axis (10) and which are provided as joint locations to intermediate elements (2).
8. Cast element in accordance claim 7, characterized in that two pairs of segment-like cut-outs (41, 41', 42, 42') are provided at the outer edge of the ring (4), with the cut-outs of a pair in each case

09691645-101800

being arranged diametrically with respect to one another and with the two pairs being displaced by 90° with respect to one another.

a 9. Method for manufacturing a static mixer in accordance with ^{claim 1} ~~any~~ ~~one of the claims 1 to 4~~, characterized in that cast elements (1) are manufactured by a precision casting or injection molding method; in that intermediate elements (2) from a tube are brought into a predetermined shape through cutting; and in that joint locations (40a, 40b) of the cast elements are subsequently machined in such a manner that the mixer which is assembled from the elements (1, 2) precisely assumes a predetermined total length (L).

a 10. Use of a static mixer in accordance with ^{claim 1} ~~any one of the claims 1 to 4~~ in injection molding machines or extrusion plants, in particular in the nozzle (6) of an injection molding machine, in a hot passage or distributor system of an injection die, in a distributor system ahead of tools of a blow-molding plant or following the helix of an extruder.

09691645.101300

AB